

- g) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:98, or
- h) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:99, or
- 5 i) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:100, or
- j) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:101, or
- 10 k) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:102, or
- l) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:103, or
- m) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:104, or
- 15 n) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:105, or
- o) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:106, or
- 20 p) a heavy chain variable domain VH of SEQ ID NO:91 and a light chain variable domain VL of SEQ ID NO:107.

In one aspect, there is provided a combination of an antibody which binds to human CSF-1R and an antibody which binds to human PD-L1 for use in the treatment of cancer,

25 wherein the antibody which binds to human CSF-1R used in the combination is characterized in comprising

- a) a heavy chain variable domain VH of SEQ ID NO:23 and a light chain variable domain VL of SEQ ID NO:24, or
 - b) a heavy chain variable domain VH of SEQ ID NO:31 and a light chain variable domain VL of SEQ ID NO:32, or
 - 5 c) a heavy chain variable domain VH of SEQ ID NO:39 and a light chain variable domain VL of SEQ ID NO:40, or
 - d) a heavy chain variable domain VH of SEQ ID NO:47 and a light chain variable domain VL of SEQ ID NO:48, or
 - 10 e) a heavy chain variable domain VH of SEQ ID NO:55 and a light chain variable domain VL of SEQ ID NO:56;
- and the antibody which binds to human PD-L1 used in the combination is characterized in comprising
- a) a heavy chain variable domain VH of SEQ ID NO:89 and a light chain variable domain VL of SEQ ID NO:92, or
 - 15 b) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:93, or
 - c) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:94, or
 - d) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:95, or
 - 20 e) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:96, or
 - f) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:97, or
 - 25 g) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:98, or
 - h) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:99, or

In one embodiment the antibody is for use in stimulating an immune response or function, such as T cell activity.

The disclosure further comprises an antibody which binds to human CSF-1R wherein the antibody is administered in combination with an antibody which binds to human PD-L1 for use in

- i) the inhibition of cell proliferation in CSF-1R ligand-dependent and/or CSF-1 ligand-independent CSF-1R expressing tumor cells;
- ii) the inhibition of cell proliferation of tumors with CSF-1R ligand-dependent and/or CSF-1R ligand-independent CSF-1R expressing macrophage infiltrate;
- iii) the inhibition of cell survival (in CSF-1R ligand-dependent and/or CSF-1R ligand-independent) CSF-1R expressing monocytes and macrophages; and/or
- iv) the inhibition of cell differentiation (in CSF-1R ligand-dependent and/or CSF-1R ligand-independent) CSF-1R expressing monocytes into macrophages;

wherein the antibody is administered in combination with an antibody which binds to human PD-L1;

wherein the antibody which binds to human CSF-1R used in the combination therapy is characterized in comprising

- a) a heavy chain variable domain VH of SEQ ID NO:23 and a light chain variable domain VL of SEQ ID NO:24, or
- b) a heavy chain variable domain VH of SEQ ID NO:31 and a light chain variable domain VL of SEQ ID NO:32, or
- c) a heavy chain variable domain VH of SEQ ID NO:39 and a light chain variable domain VL of SEQ ID NO:40, or
- d) a heavy chain variable domain VH of SEQ ID NO:47 and a light chain variable domain VL of SEQ ID NO:48, or

- m) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:104, or
- n) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:105, or
- 5 o) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:106, or
- p) a heavy chain variable domain VH of SEQ ID NO:91 and a light chain variable domain VL of SEQ ID NO:107.

10 In another aspect, there is provided a combination comprising an antibody which binds to human CSF-1R and an antibody which binds to human PD-L1, for use in

- i) the inhibition of cell proliferation in CSF-1R ligand-dependent and/or CSF-1 ligand-independent CSF-1R expressing tumor cells;
- 15 ii) the inhibition of cell proliferation of tumors with CSF-1R ligand-dependent and/or CSF-1R ligand-independent CSF-1R expressing macrophage infiltrate;
- iii) the inhibition of cell survival (in CSF-1R ligand-dependent and/or CSF-1R ligand-independent) CSF-1R expressing monocytes and macrophages; and/or
- 20 iv) the inhibition of cell differentiation (in CSF-1R ligand-dependent and/or CSF-1R ligand-independent) CSF-1R expressing monocytes into macrophages,

wherein the antibody which binds to human CSF-1R used in the combination is characterized in comprising

- 25 a) a heavy chain variable domain VH of SEQ ID NO:23 and a light chain variable domain VL of SEQ ID NO:24, or
- b) a heavy chain variable domain VH of SEQ ID NO:31 and a light chain variable domain VL of SEQ ID NO:32, or

- c) a heavy chain variable domain VH of SEQ ID NO:39 and a light chain variable domain VL of SEQ ID NO:40, or
- d) a heavy chain variable domain VH of SEQ ID NO:47 and a light chain variable domain VL of SEQ ID NO:48, or
- 5 e) a heavy chain variable domain VH of SEQ ID NO:55 and a light chain variable domain VL of SEQ ID NO:56;

and the antibody which binds to human PD-L1 used in the combination is characterized in comprising

- 10 a) a heavy chain variable domain VH of SEQ ID NO:89 and a light chain variable domain VL of SEQ ID NO:92, or
- b) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:93, or
- c) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:94, or
- 15 d) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:95, or
- e) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:96, or
- f) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:97, or
- 20 g) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:98, or
- h) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:99, or
- 25 i) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:100, or
- j) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:101, or

- k) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:102, or
- l) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:103, or
- 5 m) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:104, or
- n) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:105, or
- 10 o) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:106, or
- p) a heavy chain variable domain VH of SEQ ID NO:91 and a light chain variable domain VL of SEQ ID NO:107.

The disclosure further comprised an antibody which binds to human CSF-1R, for use in the treatment of a patient having a CSF-1R expressing tumor or having a tumor with CSF-1R expressing macrophage infiltrate, wherein the tumor is characterized by an increase of CSF-1R ligand and wherein the anti-CSF-1R antibody is administered in combination with an antibody which binds to human PD-L1,

wherein the antibody which binds to human CSF-1R used in the combination therapy is characterized in comprising

- a) a heavy chain variable domain VH of SEQ ID NO:23 and a light chain variable domain VL of SEQ ID NO:24, or
- b) a heavy chain variable domain VH of SEQ ID NO:31 and a light chain variable domain VL of SEQ ID NO:32, or
- 25 c) a heavy chain variable domain VH of SEQ ID NO:39 and a light chain variable domain VL of SEQ ID NO:40, or
- d) a heavy chain variable domain VH of SEQ ID NO:47 and a light chain variable domain VL of SEQ ID NO:48, or

e) a heavy chain variable domain VH of SEQ ID NO:55 and a light chain variable domain VL of SEQ ID NO:56;

and the antibody which binds to human PD-L1 used in the combination therapy is characterized in comprising

- o) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:106, or
- p) a heavy chain variable domain VH of SEQ ID NO:91 and a light chain variable domain VL of SEQ ID NO:107.

5 In another aspect, there is provided a combination comprising an antibody which binds to human CSF-1R and an antibody which binds to human PD-L1, for use in the treatment of a patient having a CSF-1R expressing tumor or having a tumor with CSF-1R expressing macrophage infiltrate, wherein the tumor is characterized by an increase of CSF-1R ligand,

10 wherein the antibody which binds to human CSF-1R used in the combination is characterized in comprising

- a) a heavy chain variable domain VH of SEQ ID NO:23 and a light chain variable domain VL of SEQ ID NO:24, or
- b) a heavy chain variable domain VH of SEQ ID NO:31 and a light chain variable domain VL of SEQ ID NO:32, or
- c) a heavy chain variable domain VH of SEQ ID NO:39 and a light chain variable domain VL of SEQ ID NO:40, or
- d) a heavy chain variable domain VH of SEQ ID NO:47 and a light chain variable domain VL of SEQ ID NO:48, or
- e) a heavy chain variable domain VH of SEQ ID NO:55 and a light chain variable domain VL of SEQ ID NO:56;

20 and the antibody which binds to human PD-L1 used in the combination is characterized in comprising

- a) a heavy chain variable domain VH of SEQ ID NO:89 and a light chain variable domain VL of SEQ ID NO:92, or
- b) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:93, or
- c) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:94, or

- d) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:95, or
- e) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:96, or
- 5 f) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:97, or
- g) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:98, or
- 10 h) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:99, or
- i) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:100, or
- j) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:101, or
- 15 k) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:102, or
- l) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:103, or
- 20 m) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:104, or
- n) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:105, or
- o) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:106, or
- 25 p) a heavy chain variable domain VH of SEQ ID NO:91 and a light chain variable domain VL of SEQ ID NO:107.

In one embodiment the antibodies are of human IgG1 subclass or human IgG4 subclass.

In another aspect, there is provided use of an antibody which binds to human CSF-1R wherein the antibody is in combination with an antibody which binds to human PD-L1 in the manufacture of a medicament for the treatment of cancer,

wherein the antibody which binds to human CSF-1R used in the combination is characterized in comprising

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a) a heavy chain variable domain VH of SEQ ID NO:23 and a light chain variable domain VL of SEQ ID NO:24, or

b) a heavy chain variable domain VH of SEQ ID NO:31 and a light chain variable domain VL of SEQ ID NO:32, or

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c) a heavy chain variable domain VH of SEQ ID NO:39 and a light chain variable domain VL of SEQ ID NO:40, or

d) a heavy chain variable domain VH of SEQ ID NO:47 and a light chain variable domain VL of SEQ ID NO:48, or

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e) a heavy chain variable domain VH of SEQ ID NO:55 and a light chain variable domain VL of SEQ ID NO:56;

and the antibody which binds to human PD-L1 used in the combination is characterized in comprising

a) a heavy chain variable domain VH of SEQ ID NO:89 and a light chain variable domain VL of SEQ ID NO:92, or

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b) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:93, or

c) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:94, or

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d) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:95, or

- e) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:96, or
 - f) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:97, or
 - 5 g) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:98, or
 - h) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:99, or
 - 10 i) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:100, or
 - j) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:101, or
 - k) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:102, or
 - 15 l) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:103, or
 - m) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:104, or
 - 20 n) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:105, or
 - o) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:106, or
 - p) a heavy chain variable domain VH of SEQ ID NO:91 and a light chain variable domain VL of SEQ ID NO:107.
- 25 In another aspect, there is provided use of an antibody which binds to human CSF-1R wherein the antibody is in combination with an antibody which binds to human PD-L1, in the manufacture of a medicament for
- i) the inhibition of cell proliferation in CSF-1R ligand-dependent and/or CSF-1 ligand-independent CSF-1R expressing tumor cells;

- ii) the inhibition of cell proliferation of tumors with CSF-1R ligand-dependent and/or CSF-1R ligand-independent CSF-1R expressing macrophage infiltrate;
- 5 iii) the inhibition of cell survival (in CSF-1R ligand-dependent and/or CSF-1R ligand-independent) CSF-1R expressing monocytes and macrophages; and/or
- iv) the inhibition of cell differentiation (in CSF-1R ligand-dependent and/or CSF-1R ligand-independent) CSF-1R expressing monocytes into macrophages,

10 wherein the antibody which binds to human CSF-1R used in the combination is characterized in comprising

- a) a heavy chain variable domain VH of SEQ ID NO:23 and a light chain variable domain VL of SEQ ID NO:24, or
- 15 b) a heavy chain variable domain VH of SEQ ID NO:31 and a light chain variable domain VL of SEQ ID NO:32, or
- c) a heavy chain variable domain VH of SEQ ID NO:39 and a light chain variable domain VL of SEQ ID NO:40, or
- d) a heavy chain variable domain VH of SEQ ID NO:47 and a light chain variable domain VL of SEQ ID NO:48, or
- 20 e) a heavy chain variable domain VH of SEQ ID NO:55 and a light chain variable domain VL of SEQ ID NO:56;

and the antibody which binds to human PD-L1 used in the combination is characterized in comprising

- 25 a) a heavy chain variable domain VH of SEQ ID NO:89 and a light chain variable domain VL of SEQ ID NO:92, or
- b) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:93, or
- c) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:94, or

- d) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:95, or
- e) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:96, or
- 5 f) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:97, or
- g) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:98, or
- 10 h) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:99, or
- i) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:100, or
- j) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:101, or
- 15 k) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:102, or
- l) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:103, or
- 20 m) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:104, or
- n) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:105, or
- o) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:106, or
- 25 p) a heavy chain variable domain VH of SEQ ID NO:91 and a light chain variable domain VL of SEQ ID NO:107.

In another aspect, there is provided use of an antibody which binds to human CSF-1R, in the manufacture of a medicament for the treatment of a patient having a CSF-1R expressing tumor or having a tumor with CSF-1R expressing macrophage

infiltrate, wherein the tumor is characterized by an increase of CSF-1R ligand and wherein the anti-CSF-1R antibody is in combination with an antibody which binds to human PD-L1, wherein the antibody which binds to human CSF-1R used in the combination is characterized in comprising

- 5 a) a heavy chain variable domain VH of SEQ ID NO:23 and a light chain variable domain VL of SEQ ID NO:24, or
- b) a heavy chain variable domain VH of SEQ ID NO:31 and a light chain variable domain VL of SEQ ID NO:32, or
- 10 c) a heavy chain variable domain VH of SEQ ID NO:39 and a light chain variable domain VL of SEQ ID NO:40, or
- d) a heavy chain variable domain VH of SEQ ID NO:47 and a light chain variable domain VL of SEQ ID NO:48, or
- e) a heavy chain variable domain VH of SEQ ID NO:55 and a light chain variable domain VL of SEQ ID NO:56;

15 and the antibody which binds to human PD-L1 used in the combination is characterized in comprising

- a) a heavy chain variable domain VH of SEQ ID NO:89 and a light chain variable domain VL of SEQ ID NO:92, or
- 20 b) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:93, or
- c) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:94, or
- d) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:95, or
- 25 e) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:96, or
- f) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:97, or

- g) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:98, or
- h) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:99, or
- 5 i) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:100, or
- j) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:101, or
- 10 k) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:102, or
- l) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:103, or
- m) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:104, or
- 15 n) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:105, or
- o) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:106, or
- 20 p) a heavy chain variable domain VH of SEQ ID NO:91 and a light chain variable domain VL of SEQ ID NO:107.

The disclosure further comprises:

- A) a method for
 - i) the inhibition of cell proliferation in CSF-1R ligand-dependent and/or CSF-1R ligand-independent CSF-1R expressing tumor cells;
 - 25 ii) the inhibition of cell proliferation of tumors with CSF-1R ligand-dependent and/or CSF-1R ligand-independent CSF-1R expressing macrophage infiltrate;

iii) the inhibition of cell survival (in CSF-1R ligand-dependent and/or CSF-1R ligand-independent) CSF-1R expressing monocytes and macrophages; and /or

5 iv) the inhibition of cell differentiation (in CSF-1R ligand-dependent and/or CSF-1R ligand-independent) CSF-1R expressing monocytes into macrophages;

wherein an antibody which binds to human CSF-1R, is administered in combination with an antibody which binds to human PD-L1,

or

10 B) a method of treatment of a patient having a CSF-1R expressing tumor or having a tumor with CSF-1R expressing macrophage infiltrate, wherein the tumor is characterized by an increase of CSF-1R ligand and wherein an antibody which binds to human CSF-1R is administered in combination with an antibody which binds to human PD-L1,

15 wherein the antibody which binds to human CSF-1R used in the combination therapy is characterized in comprising

Patent Claims

1. A combination of an antibody which binds to human CSF-1R and an antibody which binds to human PD-L1 for use in the treatment of cancer

wherein the antibody which binds to human CSF-1R used in the combination is characterized in comprising

 - a) a heavy chain variable domain VH of SEQ ID NO:23 and a light chain variable domain VL of SEQ ID NO:24, or
 - b) a heavy chain variable domain VH of SEQ ID NO:31 and a light chain variable domain VL of SEQ ID NO:32, or
 - 10 c) a heavy chain variable domain VH of SEQ ID NO:39 and a light chain variable domain VL of SEQ ID NO:40, or
 - d) a heavy chain variable domain VH of SEQ ID NO:47 and a light chain variable domain VL of SEQ ID NO:48, or
 - e) a heavy chain variable domain VH of SEQ ID NO:55 and a light chain variable domain VL of SEQ ID NO:56;

and the antibody which binds to human PD-L1 used in the combination is characterized in comprising

 - a) a heavy chain variable domain VH of SEQ ID NO:89 and a light chain variable domain VL of SEQ ID NO:92, or
 - 20 b) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:93, or
 - c) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:94, or

- d) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:95, or
- e) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:96, or
- 5 f) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:97, or
- g) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:98, or
- 10 h) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:99, or
- i) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:100, or
- j) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:101, or
- 15 k) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:102, or
- l) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:103, or
- 20 m) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:104, or
- n) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:105, or
- o) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:106, or
- 25 p) a heavy chain variable domain VH of SEQ ID NO:91 and a light chain variable domain VL of SEQ ID NO:107.

2. The combination according to claim 1, for use in the treatment of breast cancer, lung cancer, colon cancer, ovarian cancer, melanoma cancer, bladder cancer, renal cancer, kidney cancer, liver cancer, head and neck cancer, colorectal cancer , pancreatic cancer, gastric carcinoma cancer, esophageal cancer, mesothelioma, prostate cancer, leukemia, lymphomas, myelomas.
3. A combination comprising an antibody which binds to human CSF-1R and an antibody which binds to human PD-L1, for use in
 - i) the inhibition of cell proliferation in CSF-1R ligand-dependent and/or CSF-1 ligand-independent CSF-1R expressing tumor cells;
 - ii) the inhibition of cell proliferation of tumors with CSF-1R ligand-dependent and/or CSF-1R ligand-independent CSF-1R expressing macrophage infiltrate;
 - iii) the inhibition of cell survival (in CSF-1R ligand-dependent and/or CSF-1R ligand-independent) CSF-1R expressing monocytes and macrophages;
 - iv) the inhibition of cell differentiation (in CSF-1R ligand-dependent and/or CSF-1R ligand-independent) CSF-1R expressing monocytes into macrophages,

wherein the antibody which binds to human CSF-1R used in the combination is characterized in comprising

- a) a heavy chain variable domain VH of SEQ ID NO:23 and a light chain variable domain VL of SEQ ID NO:24, or
- b) a heavy chain variable domain VH of SEQ ID NO:31 and a light chain variable domain VL of SEQ ID NO:32, or
- 5 c) a heavy chain variable domain VH of SEQ ID NO:39 and a light chain variable domain VL of SEQ ID NO:40, or
- d) a heavy chain variable domain VH of SEQ ID NO:47 and a light chain variable domain VL of SEQ ID NO:48, or
- 10 e) a heavy chain variable domain VH of SEQ ID NO:55 and a light chain variable domain VL of SEQ ID NO:56;

and the antibody which binds to human PD-L1 used in the combination is characterized in comprising

- a) a heavy chain variable domain VH of SEQ ID NO:89 and a light chain variable domain VL of SEQ ID NO:92, or
- 15 b) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:93, or
- c) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:94, or
- d) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:95, or
- 20 e) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:96, or
- f) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:97, or
- 25 g) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:98, or
- h) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:99, or

- i) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:100, or
 - j) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:101, or
 - 5 k) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:102, or
 - l) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:103, or
 - 10 m) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:104, or
 - n) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:105, or
 - o) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:106, or
 - 15 p) a heavy chain variable domain VH of SEQ ID NO:91 and a light chain variable domain VL of SEQ ID NO:107.
4. A combination comprising an antibody which binds to human CSF-1R and an antibody which binds to human PD-L1, for use in the treatment of a patient having a CSF-1R expressing tumor or having a tumor with CSF-1R expressing macrophage infiltrate, wherein the tumor is characterized by an increase of CSF-1R ligand,
- 20 wherein the antibody which binds to human CSF-1R used in the combination is characterized in comprising
- 25 a) a heavy chain variable domain VH of SEQ ID NO:23 and a light chain variable domain VL of SEQ ID NO:24, or
 - b) a heavy chain variable domain VH of SEQ ID NO:31 and a light chain variable domain VL of SEQ ID NO:32, or
 - c) a heavy chain variable domain VH of SEQ ID NO:39 and a light chain variable domain VL of SEQ ID NO:40, or

d) a heavy chain variable domain VH of SEQ ID NO:47 and a light chain variable domain VL of SEQ ID NO:48, or

e) a heavy chain variable domain VH of SEQ ID NO:55 and a light chain variable domain VL of SEQ ID NO:56;

5 and the antibody which binds to human PD-L1 used in the combination is characterized in comprising

a) a heavy chain variable domain VH of SEQ ID NO:89 and a light chain variable domain VL of SEQ ID NO:92, or

10 b) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:93, or

c) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:94, or

d) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:95, or

15 e) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:96, or

f) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:97, or

20 g) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:98, or

h) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:99, or

i) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:100, or

25 j) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:101, or

k) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:102, or

- l) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:103, or
 - m) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:104, or
 - 5 n) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:105, or
 - o) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:106, or
 - 10 p) a heavy chain variable domain VH of SEQ ID NO:91 and a light chain variable domain VL of SEQ ID NO:107.
5. The combination according to any one of the preceding claims, characterized in that said antibodies are of human IgG1 subclass or human IgG4 subclass.
 6. The combination according to any one of the preceding claims, characterized in that said antibodies comprise a mutation selected from the group
 - 15 consisting of L234A/L235A, L234A/L235A/P329G, N297A and D265A/N297A.
 7. Use of an antibody which binds to human CSF-1R wherein the antibody is in combination with an antibody which binds to human PD-L1 in the manufacture of a medicament for the treatment of cancer,
 - 20 wherein the antibody which binds to human CSF-1R used in the combination is characterized in comprising
 - a) a heavy chain variable domain VH of SEQ ID NO:23 and a light chain variable domain VL of SEQ ID NO:24, or

b) a heavy chain variable domain VH of SEQ ID NO:31 and a light chain variable domain VL of SEQ ID NO:32, or

c) a heavy chain variable domain VH of SEQ ID NO:39 and a light chain variable domain VL of SEQ ID NO:40, or

5 d) a heavy chain variable domain VH of SEQ ID NO:47 and a light chain variable domain VL of SEQ ID NO:48, or

e) a heavy chain variable domain VH of SEQ ID NO:55 and a light chain variable domain VL of SEQ ID NO:56;

10 and the antibody which binds to human PD-L1 used in the combination is characterized in comprising

a) a heavy chain variable domain VH of SEQ ID NO:89 and a light chain variable domain VL of SEQ ID NO:92, or

b) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:93, or

15 c) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:94, or

d) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:95, or

20 e) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:96, or

f) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:97, or

g) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:98, or

25 h) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:99, or

i) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:100, or

- j) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:101, or
 - k) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:102, or
 - 5 l) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:103, or
 - m) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:104, or
 - 10 n) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:105, or
 - o) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:106, or
 - p) a heavy chain variable domain VH of SEQ ID NO:91 and a light chain variable domain VL of SEQ ID NO:107.
- 15 8. The use according to claim 7, for the treatment of breast cancer, lung cancer, colon cancer, ovarian cancer, melanoma cancer, bladder cancer, renal cancer, kidney cancer, liver cancer, head and neck cancer, colorectal cancer , pancreatic cancer, gastric carcinoma cancer, esophageal cancer, mesothelioma, prostate cancer, leukemia, lymphomas, myelomas.

9. Use of an antibody which binds to human CSF-1R wherein the antibody is in combination with an antibody which binds to human PD-L1, in the manufacture of a medicament for
- 5 i) the inhibition of cell proliferation in CSF-1R ligand-dependent and/or CSF-1 ligand-independent CSF-1R expressing tumor cells;
- ii) the inhibition of cell proliferation of tumors with CSF-1R ligand-dependent and/or CSF-1R ligand-independent CSF-1R expressing macrophage infiltrate;
- 10 iii) the inhibition of cell survival (in CSF-1R ligand-dependent and/or CSF-1R ligand-independent) CSF-1R expressing monocytes and macrophages; and/or
- iv) the inhibition of cell differentiation (in CSF-1R ligand-dependent and/or CSF-1R ligand-independent) CSF-1R expressing monocytes into macrophages,
- 15 wherein the antibody which binds to human CSF-1R used in the combination is characterized in comprising
- a) a heavy chain variable domain VH of SEQ ID NO:23 and a light chain variable domain VL of SEQ ID NO:24, or
- 20 b) a heavy chain variable domain VH of SEQ ID NO:31 and a light chain variable domain VL of SEQ ID NO:32, or
- c) a heavy chain variable domain VH of SEQ ID NO:39 and a light chain variable domain VL of SEQ ID NO:40, or
- d) a heavy chain variable domain VH of SEQ ID NO:47 and a light chain variable domain VL of SEQ ID NO:48, or
- 25 e) a heavy chain variable domain VH of SEQ ID NO:55 and a light chain variable domain VL of SEQ ID NO:56;
- and the antibody which binds to human PD-L1 used in the combination is characterized in comprising

- o) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:106, or
- p) a heavy chain variable domain VH of SEQ ID NO:91 and a light chain variable domain VL of SEQ ID NO:107.

- 5 10. Use of an antibody which binds to human CSF-1R, in the manufacture of a medicament for the treatment of a patient having a CSF-1R expressing tumor or having a tumor with CSF-1R expressing macrophage infiltrate, wherein the tumor is characterized by an increase of CSF-1R ligand and wherein the anti-CSF-1R antibody is in combination with an antibody which binds to
- 10 human PD-L1,

wherein the antibody which binds to human CSF-1R used in the combination is characterized in comprising

- a) a heavy chain variable domain VH of SEQ ID NO:23 and a light chain variable domain VL of SEQ ID NO:24, or
- 15 b) a heavy chain variable domain VH of SEQ ID NO:31 and a light chain variable domain VL of SEQ ID NO:32, or
- c) a heavy chain variable domain VH of SEQ ID NO:39 and a light chain variable domain VL of SEQ ID NO:40, or
- 20 d) a heavy chain variable domain VH of SEQ ID NO:47 and a light chain variable domain VL of SEQ ID NO:48, or
- e) a heavy chain variable domain VH of SEQ ID NO:55 and a light chain variable domain VL of SEQ ID NO:56;

and the antibody which binds to human PD-L1 used in the combination is characterized in comprising

- 25 a) a heavy chain variable domain VH of SEQ ID NO:89 and a light chain variable domain VL of SEQ ID NO:92, or
- b) a heavy chain variable domain VH of SEQ ID NO:90 and a light chain variable domain VL of SEQ ID NO:93, or

11. The use according to any one of claims 7 to 10, wherein said antibodies are of human IgG1 subclass or human IgG4 subclass.
12. The use according to any one of claims 7 to 11, wherein said antibodies comprise a mutation selected from the group consisting of is L234A/L235A,
5 L234A/L235A/P329G, N297A and D265A/N297A.